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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/887,121	06/25/2001	Takashi Endo	35.C15484	7326

5514 7590 03/11/2004

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EXAMINER

SUNG, CHRISTINE

ART UNIT PAPER NUMBER

2878

DATE MAILED: 03/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/887,121	ENDO, TAKASHI	
	<b>Examiner</b>	<b>Art Unit</b>	
	Christine Sung	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-8,10-12 and 14-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8,10-12 and 14-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 July 2003 and 28 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some    \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

***Response to Amendment***

1. The amendment filed on December 15, 2003 has been entered.
2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/13/2004 has been entered.

***Claim Objections***

3. Claims 12, 14-18 are objected to because of the following informalities:
4. Claims 12, 14-17 are objected to under 37 CFR 1.75 as being a substantial duplicate of claims 1-5 respectively. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).
5. Claim 18 recites the limitation "the inner case" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.
6. Claim 16 is objected to because of the following informalities: The claim reads "the radiation Imaging" but should read --the radiation imaging-- to correct for a minor grammatical error.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-2, 4-8, 10-12, 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crowell (US Patent 5,796,109) in view of Linden (US Patent 5,869,836).

Regarding claims 1 and 12, Crowell discloses a radiation imaging system comprising: a radiation image detection panel (Figure 5, element 22) having a means for converting radiation into electric signals; an outer enclosure which holds the radiation image detection panel (figure 5, elements 36 and 38), and an elastic body (Figure 5, element 40). Further, Crowell discloses a pair of sealed panels (elements 50 and 52) that enclose the radiation detection panel, and are elastically supported. Crowell does not specifically disclose positioning a cushioning material between the radiation image detection panel and the outer enclosure to elastically protect the panel and pressurize the radiation detector panel toward the outer enclosure from the side

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opposite to the radiation incident side of the radiation detection panel. Linden discloses a detector apparatus that protects the detector element (Figure 1, element 14) from shock using a cushioning elastic material (Figure 1, elements 44 and 52) on two ends of a spring-loaded detector system. Linden discloses that the cushioning or interface pad material (element 52) is provided between the detector element (element 14) on a radiation incident side and the outer enclosure (elements 26, 22, 12), wherein the elastic support means (element 40) elastically supports the radiation image detector from the side opposite to the radiation incident side of the radiation detector (see figure 1). Linden demonstrates that detection elements that are prone to excessive shock or handling can reduce the risk of detector failure or damage by the inclusion of various elastomeric cushioning materials and a spring system. The cushioning of detection elements by pressurizing the detector toward the outer enclosure from the side opposite the radiation incident side of the detector is prior art, therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the cushioning material and/or springs as disclosed by Linden with the invention as claimed Crowell in order to reduce shock or damage to the detection elements during normal use.

Regarding claims 2 and 14, Crowell further discloses that the radiation imaging system includes an electric circuit board (Figure 5, element 48).

Regarding claims 4 and 16, Crowell further discloses a support plate (Figure 5, element 44) that supports the radiation image detection panel and the electric circuit board being attached to the support plate (Figure 5) so that the circuit board is integrally attached to the radiation image detection panel.

Regarding claims 5 and 17, Crowell further discloses that the elastic support means comprises a rubbery or similar flexible material (Column 5, lines 18-19).

Regarding claims 6-8, Crowell discloses the limitations set forth in claim 1, but does not specify that the elastic support means comprises a spring. Linden discloses using a spring (element 40) to protect and absorb shock in a radiation detection system. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the springs disclosed by Linden with the invention disclosed by Crowell to be able to tune the system to a desired load for a desired application. Further because the types of springs disclosed in the claims are well known in the art, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have used any spring that attained the necessary properties because it is only a matter of design choice.

Regarding claim 10, Linden further discloses that the cushioning or interface pad material (element 52) is a transparent silicone elastomer (see column 6, lines 5-6), which is a radiation transmissive member.

Regarding claim 11, Crowell discloses elastic support means, as disclosed above and further the elastic support means has a restricted range of motion. Although Crowell does not explicitly describe a stopper, it is inherent that no matter how much force is exerted upon the elastic support means, it will always restrict the motion range of the support plate in the downward direction.

Regarding claim 18, Linden discloses that the inner case (elements 46, 77, 74, 16, etc) has an opening (interface where element 20 (surface of the detector element) meet the interface pad (element 52)) at least on the side where the radiation is incident (See Figure 1).

Regarding claim 19, Crowell discloses a radiation imaging system comprising: a radiation image detection panel (Figure 5, element 22) having a means for converting radiation into electric signals; an outer enclosure which holds the radiation image detection panel (figure 5, elements 36 and 38), an elastic support means (Figure 5, element 40) wherein the radiation image detection panel supported by the elastic support means toward the outer enclosure (Figure 5). Crowell does not specifically disclose an inner case that is supported by the elastic support means that holds the radiation detector, and further does not include that the inner case has an opening at least on the side where in the radiation is incident and wherein the inner case comprises a flange at the opening and is supported by the elastic support means via the flange. However, Linden demonstrates an inner case (elements 42, 44, 76, 94) that holds the radiation detector (element 14) wherein the inner case has an opening (interface where element 20 (surface of the detector element) meet the interface pad (element 52)) at least on the side where the radiation is incident (See Figure 1) wherein the inner case comprises a flange (elements 90, 92, 94, 96) and is supported by the elastic support means (element 40) via the flange (see Figure 1). One of ordinary skill in the art would be motivated to use the inner case configuration disclosed by Linden with the invention disclosed by Crowel, in order to ensure greater protection of the detector elements from improper handling during use.

Regarding claim 20, Crowel in view of Linden discloses the claimed invention except that the elastic support means is provided on the sidewall of the outer enclosure. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have placed the elastic member of Linden's invention on the side wall, since it has been held that rearranging parts of an invention only involves routine skill in the art. Further, the sidewall also

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contains elastic material which would motivate one of ordinary skill in the art to rearrange the springs or elastic support means to the sidewall to ensure greater protection of the detector elements from damage in the direction perpendicular to the sidewall. *In re Japikse*, 181 F2d 1019, 86 USPQ 70 (CCPA 1950).

10. Claims 3 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crowell (US Patent 5,804,832) in view of Linden (US Patent 5,869,836) and further in view of Lys et al. (US Patent 6,211,626).

Crowell in view of Linden discloses all the limitations set forth in claim 1 but fails to specifically disclose the use of a flexible circuit board. It is well known in the art to use flexible circuit boards in situations where there is a stress placed on the circuit board, as disclosed in Lys et al. Lys discloses that LEDs can be mounted to a flexible circuit board (column 75, line 63-column 76, line 2). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used a flexible circuit board as disclosed by Lys et al. to reduce the stress placed on the circuit board disclosed by Crowell, which reduces the possibility of failure in the circuitry.

#### ***Response to Arguments***

11. Applicant's arguments with respect to claims 1-8, 10-12 and 14-20 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Allowable Subject Matter***

12. The indicated allowability of claims 19-20 are withdrawn in view of the newly discovered reference(s) to Linden (US Patent 5,869,836). Rejections based on the newly cited reference(s) above.



***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Sung whose telephone number is 571-272-2448. The examiner can normally be reached on Monday- Thursday 7-5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christine Sung  
Examiner  
Art Unit 2878

CS

  
**DAVID PORTA**  
**SUPERVISORY PATENT EXAMINER**  
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